This form should be used for all taxonomic proposals. Please complete all those modules that are applicable.

For guidance, see the notes written in blue and the separate document “Help with completing a taxonomic proposal”

Please try to keep related proposals within a single document.

Part 1: **TITLE, AUTHORS, etc**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Code assigned:** | ***2017.010M*** | | | | (to be completed by ICTV officers) |
| **Short title: Six (6) new species in the genus *Avulavirus* (*Mononegavirales*: *Paramyxoviridae*)** | | | | | |
| **Modules attached**  (Modules 1, 4 and either 2 or 3 are required. | | **1**  **2  3  4** | | | |
| **Author(s):** | | | | | |
| Jens H. Kuhn  Claudio Verdugo  Terry Fei Fan Ng  Sunil Kumar Mor  Kang-Seuk Choi  Luciano Matsumiya Thomazelli  Víctor Manuel Neira Ramírez | | | | | |
| **Corresponding author with e-mail address:** | | | | | |
| Víctor Manuel Neira Ramírez, [victorneira@u.uchile.cl](https://mail.nih.gov/owa/redir.aspx?C=VWdLtyfQgBHxe_BKZjreHjdd1IJPpV_9cReFOs3b17RHrHlNaZrUCA..&URL=mailto%3avictorneira%40u.uchile.cl) | | | | | |
| **List the ICTV study group(s) that have seen this proposal:** | | | | | |
| A list of study groups and contacts is provided at <http://www.ictvonline.org/subcommittees.asp> . If in doubt, contact the appropriate subcommittee chair (there are six virus subcommittees: animal DNA and retroviruses, animal ssRNA-, animal ssRNA+, fungal and protist, plant, bacterial and archaeal) | | | **ICTV *Paramyxoviridae* Study Group** | | |
| **ICTV Study Group comments (if any) and response of the proposer:** | | | | | |
|  | | | | | |
|  | | | | | |
| Date first submitted to ICTV: | | | | June 8, 2017 | |
| Date of this revision (if different to above): | | | | June 16, 2017 | |

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| **ICTV-EC comments and response of the proposer:** |
|  |

**Part 2**: **PROPOSED TAXONOMY**

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| Present the proposed new taxonomy on accompanying spreadsheet |
| **Name of accompanying spreadsheet: 2017.010M.N.v1.Avulavirus\_6sp** |

Please display the taxonomic changes you are proposing on the accompanying spreadsheet module 2017\_TP\_Template\_Excel\_module. Submit both this and the spreadsheet to the appropriate ICTV Subcommittee Chair.

**Part 4:** **APPENDIX**: supporting material

One novel avulavirus, avian paramyxovirus 14 (APMV-14), was discovered in a fecal sample of an unspecified duck sampled in 2011in Obihiro City, Hokkaido Prefecture, Japan (Thampaisarn *et al*.). This virus was isolated in embryonated chicken eggs and EM pictures of its virions, reminiscent of avulavirions, were obtained. AMPV-14 was also isolated in CEF cells. The complete genome of APMV-14 was deposited into GenBank (Thampaisarn *et al*.).

Another novel avulavirus, avian paramyxovirus 15 (APMV-15), was discovered in a cloacal swab of a white-rumped sandpiper (*Calidris fuscicollis*) sampled in Lagoa do Peixe National Park, Rio Grande do Sul State, Brazil (Thomazelli *et al*.). This virus was isolated in embryonated chicken eggs. The coding-complete genome of APMV-15 was deposited into GenBank (Thomazelli *et al*.).

Another novel avulavirus, tentatively also referred to as APMV-15 (and here renamed APMV-16), was discovered in 2014 in feces of unspecified birds in Gyeongnam Province, South Korea (Lee *et al*.). This virus was isolated in embryonated chicken eggs, and EM pictures of its virions, reminiscent of avulavirions, were obtained. The complete genome of APMV-16 was deposited into GenBank.

Three novel avulaviruses, Antarctic penguin viruses A-C (APVA-APVC) were detected in cloacal swabs of Gentoo penguins (*Pygoscelis papua*) sampled from 2014–2016 at Kopaitic Island in Antarctica (Neira *et al*.). These viruses were isolated in embryonated chicken eggs and propagated in MDBK tissue culture. Their coding-complete genome sequences were determined and deposited into GenBank (Neira *et al*.).

We compare all coding complete genomes and performed phylogeny (Figure 1, 2). The new viruses recently described are not related between them, except the penguin viruses (Neira el al.,).

We propose that the six new viruses described above be classified in six new species, *Avian avulavirus 14-19*, respectively.

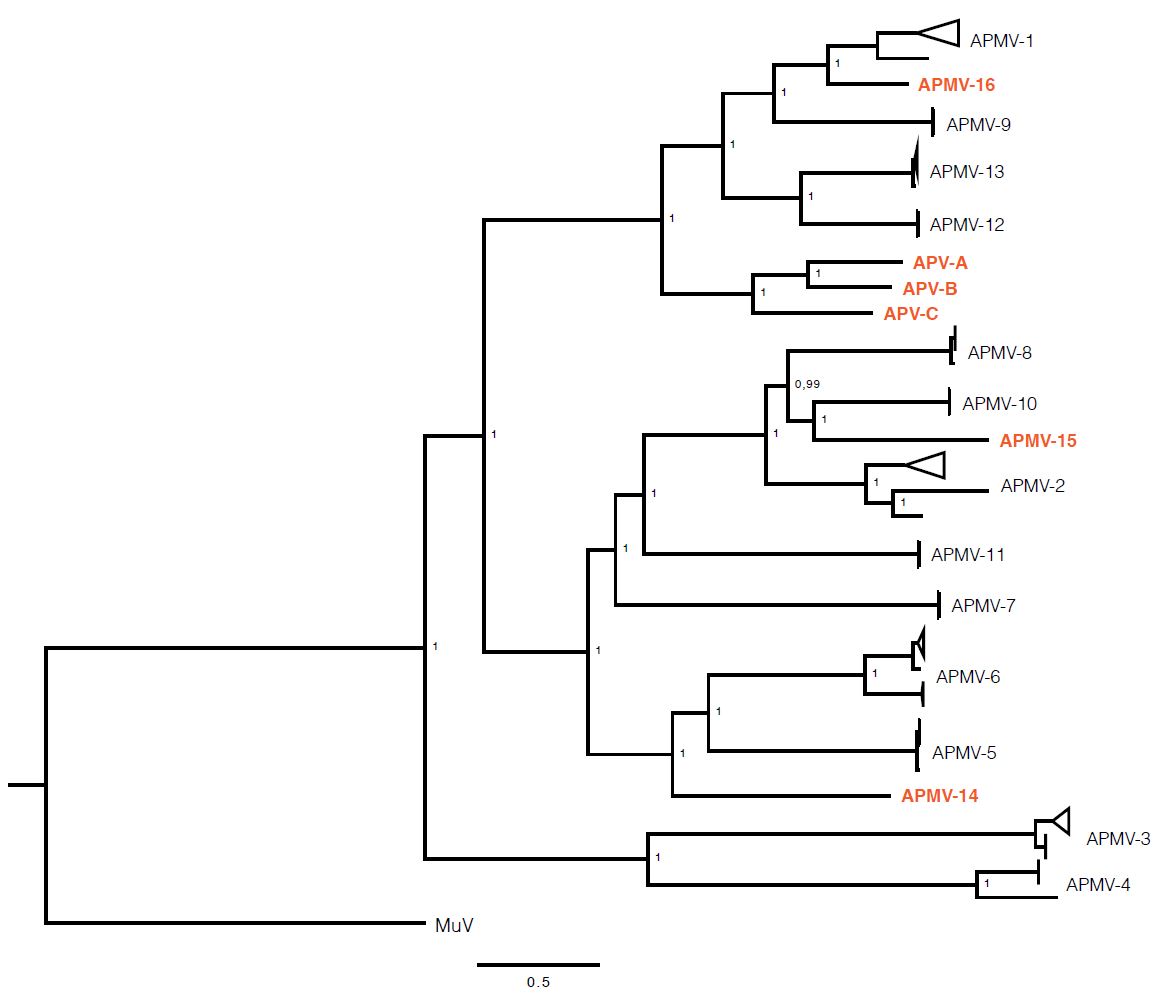
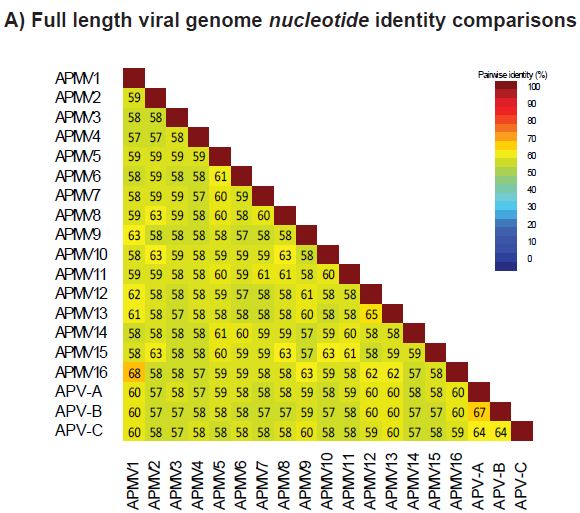
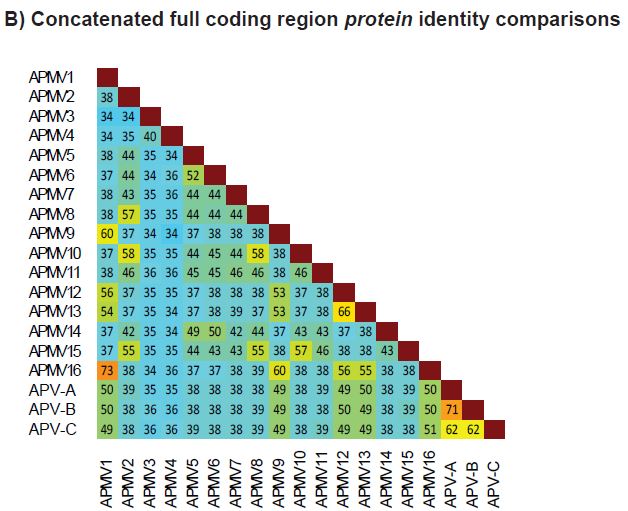


Figure 1. Bayesian phylogenetic tree based on concatenated nucleoprotein, phosphoprotein, matrix protein, fusion protein, hemagglutinin-neuraminidase protein, and RNA-dependent RNA polymerase protein gene sequences of 82 avulaviruses analyzed including those for which new species proposed. Mumps virus (MuV, a rubulavirus) was used as an outgroup. Novel viruses are indicated in orange. The best-fit model of nucleotide substitution was generalized time reversible plus gamma plus invariant sites. The analysis was considered complete if the average SD of the split frequencies was <0.01 and effective sample size was >200. The values represent the posterior probabilities of each node. Scale bar indicates nucleotide substitutions per site. APMV, avian paramyxovirus.





| C:\Users\kuhnjens\Desktop\C.JPG  **Figure 2.** Pairwise comparisons between the penguin avulaviruses and other avulaviruses. A) Full length viral nucleotide comparison B) Concatenated full coding region protein comparison C) Hemagglutinin- neuroaminidase protein identity comparisons.  **References:** |
| --- |
| Lee HJ, Kim JY, Lee YJ, Lee EK, Song BM, Lee HS, Choi KS. A Novel Avian Paramyxovirus (Putative Serotype 15) Isolated from Wild Birds. Front Microbiol. 2017 May 5;8:786  Neira V, Tapia R, Verdugo C, Barriga G, Mor S, Ng TFF, *et al*. Identification of a novel clade of avulaviruses in Antarctic penguins. Emerg Infect Dis 2017;23: DOI: 10.3201/eid2307.170054.  Thampaisarn R, Bui VN, Trinh DQ, Nagai M, Mizutani T, Omatsu T, *et al*. Characterization of avian paramyxovirus serotype 14, a novel serotype, isolated from a duck fecal sample in Japan. Virus Res 2017;228:46–57.  Thomazelli LM., de Araújo J., Fabrizio T., Walker D., Reischak D., Ometto T., *et al*. Novel avian paramyxovirus (APMV-15) isolated from a migratory bird in South America. PLOS One 2017;12:e0177214. |